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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,908

04/08/2005

Stefan Ossenkopp

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04/19/2007

EXAMINER

CAZAN, LIVIUS RADU

ART UNIT

PAPER NUMBER

3729

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/530,908

Applicant(s)

OSSENKOPP ET AL.

Examiner

Livius R. Cazan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/8/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-10** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the method steps in claim 1 are not recited as positive method steps. Claim 1 should be revised so that, for example, step a) reads --stamping onto the wire elements (7, 11, 12) a cross-sectional profile that increases the slot space factor--, step c) reads --offsetting the stamped wire elements (7, 11, 12) in the end regions of these wire elements (7, 11, 12) using offsetting dies, and-- etc. so as to positively recite the method steps.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. **Claims 1-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafer (US5508571 to Shafer, Jr.) in view of Maesoba (US6339871 to Maesoba et al.) and Oohashi (US6707211 to Oohashi et al.) as well as over Maesoba in view of Shafer and Oohashi.

Shafer discloses forming a multiphase star-connected winding by loading a plurality of wire elements into a laminate core (12, Fig. 1), some of the wire elements constituting winding elements, others to form an integrated start point, and still others for supplying current to the winding, **as in claims 1 and 6**. To form the star point, a connecting ring (24, Fig. 1) is placed on an inside of a finished winding head, and attaching the wires for the integrated star point to the ring is performed either by soldering, brazing, welding (i.e. thermal attachment), or other means of mechanical and electrical attachment (see col. 4, lns. 1-16), **as in claims 1 and 9**. The ring has recesses (28, Fig. 4), **as in claim 10**. An insulation (22, Fig. 1) is provided in the attachment region of the windings so as to prevent contact between the star point connecting ring and the windings, **as in claim 7**. Shafer also states that the method is applicable to any type of winding, provided that a common neutral (i.e. star) winding pattern is utilized (col. 3, lns. 9-20).

Shafer does not disclose the process utilized to insert the winding into the core, i.e. does not disclose utilizing offsetting dies to offset and shape the conductors as in claims 1, 4, and 5, nor stamping onto the wire elements a cross-sectional profile that increases the slot space factor, as in claim 1, the profile being a wedge shape or an oval or circular cross-sectional profile as in claims 2 and 3.

Maesoba discloses a method of forming a star-connected multiphase winding whereby offsetting dies (11, 12, Fig. 1) are used to offset wire elements forming a wire basket to be inserted into insulated (4, Fig. 12) slots (2, Fig. 12) of a laminated core (1, Fig. 12), some of the wires elements constituting the winding, others constituting a star point, and still others for supplying current to the winding (310, 320, 330, 340, in Figs. 1, 16, and 17), **as in claims 1, 4, 6, and 7**. The winding heads are shaped by the offsetting operation and the contacting ends of the wires are contacted to one another (as shown in Fig. 13), **as in claims 5 and 8**.

Maesoba does not disclose connecting the wire elements for the star point to a connecting ring as in claims 1, 9, and 10, nor stamping onto the wires a cross-sectional profile that increases the slot space factor, as in claim 1, the profile being a wedge shape or an oval or circular cross-sectional shape, as in claims 2 and 3. However, it should be noted that the wires of Maesoba have a profile that increases the slot space factor (rectangular; see Fig. 2). It is however unclear whether a stamping operation was utilized to obtain this shape.

Oohashi discloses stamping onto wire elements a cross-sectional profile that increases the slot space factor (see Figs. 11 and 12; see col. 14, Ins. 9-15; see col. 1, Ins. 34-52).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Shafer, Maesoba, and Oohashi to obtain the invention as claimed. One of ordinary skill in the art would have been motivated to apply the teachings of Oohashi in order to improve the slot space factor of

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the windings and thus improve the performance of the electrical machine. One of ordinary skill in the art would have been motivated to combine the teachings of Shafer and Maesoba in order to easily form a star point of a star-connected multiphase winding.

**Regarding claims 2 and 3**, it should be noted that a wire cross-sectional profile that increases the slot space factor is any profile that closely matches the shape of the slot. Thus, for a rectangular slot as shown in Maeda (see Fig. 12), the wires have a rectangular cross-section. Similarly, for other slots, such as slots having a wedge shape or an oval or circular cross-sectional shape, a wire would necessarily have the same shape as the slot, in order to fill the slot. Thus, it is deemed that the shape of the cross-sectional profile is merely a matter of design choice which fails to patentably distinguish Applicant's claims over the prior art since there is no indication that the recited shapes provide an advantage, are used for a particular purpose, or solve a problem that would not be provided or solved by any other wire shape matching a profile of a corresponding slot.

**Regarding claim 4**, Shafer discloses an embodiment that utilizes several parallel-connected coils per phase, and thus more than three wires for the star point. It is clear that a winding can be installed in numerous ways in a core, depending on the chosen winding pattern (i.e. lap, distributed etc.) as well as the number of poles and slots of the machine, and thus the position of the conductors of the star point can vary. However, if utilizing the same winding pattern as the Applicant, and utilizing a single coil

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per phase, as appears to be the case in Applicant's disclosed embodiment, the wire elements for the star point would be offset from one another by 120 degrees.

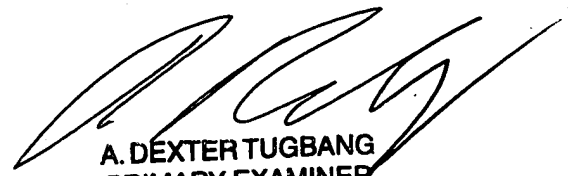
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Livius R. Cazan whose telephone number is (571) 272-8032. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571)272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LRC 04/11/2007



A. DEXTER TUGBANG  
PRIMARY EXAMINER